OSWER Innovations Pilot

Agricultural and Municipal Cooperation in Co-composting Green and Animal Wastes

In December 2001, the Office of Solid Waste and Emergency Response (OSWER) initiated a series of innovative pilots testing new ideas and strategies for environmental and public health protection to make OSWER programs more efficient, effective, and user-friendly. A small amount of money is set aside to fund creative proposals addressing waste minimization, energy recovery, recycling, and land revitalization that may be replicated across various sectors, industries, communities, and regions. We hope these pilots will pave the way for programmatic and policy recommendations by demonstrating the environmental and economic benefits of creative, innovative approaches to the difficult environmental challenges we face today.

BACKGROUND

California is the number one milk producing state in the nation. Home to 1.6 million milk cows, dairies are the leading agricultural enterprise in California, with raw milk production valued at nearly $4 billion annually. The nearly one million cows in the Central Valley create more waste annually than a city of 22 million people; over 70 billions pounds of waste per year. If this waste is not properly applied to crops or stored, it has significant local and statewide environmental impacts. Dairy producers and other animal operations are facing substantial regulatory pressures to improve protection of air and water resources. In California, special wastewater discharge exemptions are ending, Comprehensive Nutrient Management Plans (CNMP) are being required, and new Concentrated Animal Feeding Operation (CAFO) rules will take effect in the near future.

Manure waste export will likely be necessary for many CAFOs, but offsite options for reuse of raw manure are increasingly limited, particularly as pathogens become more of a concern to end-users. Composting of dairy manure is a proven waste management strategy that can produce a safe product suitable for use as a soil amendment. At the same time, an increasing amount of organic waste is being separated from municipal solid waste and composted under a state recycling mandate. However, the nitrogen content of the municipal compost is low and much of it ends up at landfills. Many municipalities are looking to produce a higher value product. Because dairy manure is high in nitrogen, it is an excellent compliment to the carbon-rich green waste. A large portion of the dairy industry in the Central Valley is in relatively close proximity to urban areas, particularly around the cities of Stockton, Visalia, Fresno, Merced, Modesto and Sacramento. Cooperation between the urban generators of green waste with the semi-rural sources of manure would provide economic and environmental benefit for both sectors.

PILOT APPROACH

U.S. EPA Region 9, in partnership with Sustainable Conservation, the dairy industry, and Merced County will build upon existing partnerships to demonstrate an innovative model of manure and green waste management that benefits both the agricultural and municipal sectors. The project will use the existing municipal composting infrastructure to establish a dairy manure/green waste co-composting operation. Project partners will identify dairy producers that would be interested in participating in the project, determine realistic hauling distance limits, and formalize the role of dairy membership organizations involved. The costs of transport, processing, and market delivery will be assessed and amounts of new revenue sources determined. These costs and benefits will be compared with other alternatives for dealing with manure wastes. Participants will be surveyed about successes and lessons learned, and outcomes of the project will be disseminated. Geographical areas for expansion of the

project will be determined and criteria for selecting locations and participants will be developed.

INNOVATION

A key premise of this approach is that there are unrealized environmental and economic benefits to be gained by having municipal and agricultural sectors collaborate. Municipalities can enhance the economic value and marketability of their compost, reduce the amount of material landfilled, and provide a vitally needed service to their agricultural community. The agricultural sector can find a cost-effective solution for its waste stream, comply with new CAFO and CNMP requirements, and reduce the environmental impact of their operations on water quality. If successful, this approach could provide a replicable manure and green waste management strategy for municipalities and CAFOs in California, and perhaps, in other states.

BENEFITS

Dairy farmers, who are faced with the need to export more of their nutrient wastes, will be able to cost effectively export and recycle their waste. This will help reduce nitrate contamination of groundwater in the area and allow them to comply with CNMP and other regulatory requirements. Municipalities can produce a higher value product and increase the marketing opportunities for their compost. If municipalities can sell, rather than give away their compost product, the financial viability of the model will be enhanced. Operational costs will be minimized by using existing equipment and by backhauling the finished compost to growers who are adjacent to the dairies.

CONTACTS

Patricia Norton, EPA Region 9, 415-972-3318

For additional information, visit the EPA OSWER Innovations web site at: www.epa.gov/oswer/IWG.htm.

Solid Waste and Emergency Response (5101T)

EPA 500-F-03-010
April 2003
www.epa.gov/oswer/